Sleep Stages, REM, and Dreaming: Why Do We Dream?
Information-Processing Theory

• Dreams serve an important memory-related function by sorting and sifting through the day’s experiences

• Research suggests REM sleep helps memory storage.
Physiological Function Theory

• Neural activity during REM sleep provides periodic stimulation of the brain.
Activation-Synthesis Theory

• Dreams are the mind’s attempt to make sense of random neural firings in the brain as one sleeps.
Sleep Disorders

• Insomnia
• Sleep apnea – snoring – stop breathing
• Night Terrors
• Sleep walking
• Narcolepsy
• Jet lag
Insomnia – Sleepless in Seattle

Some causes include:
- anxiety
- exercise too close to bedtime
- changes in work shift/travel
- noisy neighbors
- coffee/caffeine
- physical illness
Sleepless in Seattle...sleep clinics

Arrangement of Electrodes for Recording the Electrophysiology of Sleep  This diagram shows the way in which electrodes are attached to the person’s head and face in a typical sleep experiment. Electrodes on the scalp (1) record the patterns of brain waves. Electrodes near the person’s eyes (2) record eye movements. Electrodes on the chin (3) record tension and electrical activity in the muscles. A neutral electrode on the ear (4) completes the circuit through amplifiers (5) that produce graphical records of the various patterns.
Sleep Solutions

- 20-minute power nap
- Regular sleep schedule
- Regular exercise (3 hrs. prior)
- Warm milk (tryptophan like turkey)
- Routine
- Separate sleep area
Hypnosis

• Form of altered consciousness in which people become highly suggestible and do not use their critical thinking skills
• Different than sleep because subjects are receptive and responsive
• State of consciousness, that lies between awakening and sleep. There is absolutely nothing unnatural about hypnosis, on the contrary you are in a hypnotic condition quite a few times a day. The condition resembles the one you are in when you watch TV, or drive a car. One could define hypnosis as a condition of concentrated attention.
• If one exploits this concentrated condition in a therapeutic connection, it is possible to influence the mind in a positive direction.
History of Hypnosis...

- Hypnos – Greek God
- Sleep temples
- Franz Mesmer – 1st to study/practice hypnosis
- Used ‘magnetism” in bathtubs
Harry Arons

• In 1967 wrote, *Hypnosis in Criminal Investigation*, dedicated to the application of hypnosis in the judicial system. Chapters include such applications such as memory, age regression, induction techniques and confabulation. Arons also traveled the country training law enforcement agencies. His teaching created national acceptance in the legal community and increased positive awareness to the practice of hypnosis for trial applications.

• **Arons scale**, recognizes six levels of trance depth:
  - 1. Hypnoidal
  - 2. Light trance
  - 3. Medium trance
  - 4. Profound trance
  - 5. Somnambulism
  - 6. Profound Somnambulism
History of hypnosis...

• Hypnotist induces a trance by slowly persuading a subject to relax and to lose interest in external distractions
• “Success” depends on the suggestibility of the subject
• Aids in pain relief (childbirth), and uncovering personality disorders – age regression
• Overcoming a problem; (athletics, peak performance)
• Accomplishing an objective.
• Having an experience.
Hypnosis requires your consent.

A person cannot get "stuck" in hypnosis.

A few minutes of hypnosis is equal to a few **HOURS** of sleep. It feels great!

Anyone with average or above average intelligence can be hypnotized.

Hypnosis is not sleep, but very much like daydreaming.

You will not reveal intimate secrets while hypnotized.

If you have ever driven down the highway, begun daydream and while your conscious mind is elsewhere, you drive right past your exit......

You have experienced hypnosis! (trance state)
Meditation

- A procedure that uses mental exercises to achieve a tranquil state
- Religious practice – all major religions
- Highly focused state of consciousness
- Gained in popularity as a means of promoting physical/psychological well-being by reducing stress and inducing relaxation
Effects of Meditation

- Heart Rate
- Respiratory rate
- Oxygen consumption
- Carbon dioxide expiration
- Stress

It’s okay if you cry, sleep, or are slightly anxious
Meditation Co

• Sit still and listen
• **Mantra** – word or phrase used to help you relax
• Not *fight or flight* but *flow*
• *Transcendental meditation* (TM), Prayer, Zen, Yoga
• Opening-up meditation – awareness of everyday events
• Mandalas - Centering images used in Eastern cultures
Mandalas

- Sanskrit – means *center*
- Any center is tied to its circumference and any circumference is always determined by the center
- Suppresses activity in the sympathetic nervous system
- Examples in Nature:
  - Iris of our eye, A bird’s nest, A snowflake, Planet Earth
- Cross-Cultural:
  - Ancient Tibetan, Navajo and Native Americans, Romans
- Psychologically:
  - Carl Jung – the path to our center voice of unconscious
  - Meditations – shedding light onto something that was previously dark or hidden
  - Helps focus; calming
Group Meditation
Sensory Deprivation

• Subject is removed from all stimuli = cabin fever, hallucinations, irritability
• Difficulty concentrating

• What does this say for solitary confinement?
Biofeedback – *hook me up*

- **You** learn to change physiological processes
- Reduces blood pressure, relieves migraines
- Reduces stress and controls anxiety
Psychoactive Drugs.

- those which interact with the central nervous system to alter a person’s mood, perception, and behavior
- Attach themselves to synaptic receptors in the brain and block/stimulate certain chemical reactions
- Distort sensation and alter perception.

- Marijuana, Hallucinogens, alcohol
  
  *The monkey on your back = addiction*
  
  - The harder you try to shake it off, the harder it clings to you. It demands to be fed at all hours of the day and night. It screams louder when you try to ignore it. No matter where you go, it’s always there.
Marijuana

- Used as an intoxicant among Eastern cultures for centuries
- THC (tertrahydrocannabinol) main ingredient
- Debate
  - Instill or heighten a variety of unpleasant experiences helpful in regulation of pain for dying cancer/AIDS victims
Hallucinogens

- Main effect is to produce hallucinations
- *Psychedelic*
- Mushrooms, cannabis, peyote
- LSD:
  - *One of the most powerful drugs known. During a LSD trip a person can experience any number of mood states*
    - Terrifying – *distortions – intermingling of senses*
  - Panic reactions are most common side effect
  - Lowered popularity due to public fears and Chromosome damage
Alcohol

- Most widely used mind-altering drug in U.S
- Consumption is encouraged through advertising, social expectations, and traditions
- Immediate effect is loosening of inhibitions but alcohol is actually a depressant
- As amount consumed increases, the drinker’s ability to function decreases
- Slurred speech, blurred vision, and impairment in judgment
<table>
<thead>
<tr>
<th>Blood Alcohol Level*</th>
<th>Behavioral Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05</td>
<td>Lowered alertness, impaired judgment, release of inhibitions, good feelings</td>
</tr>
<tr>
<td>0.10</td>
<td>Slowed reaction time and impaired motor function, less caution</td>
</tr>
<tr>
<td>0.15</td>
<td>Large, consistent increases in reaction time</td>
</tr>
<tr>
<td>0.20</td>
<td>Marked depression in sensory and motor capability, decidedly intoxicated behavior</td>
</tr>
<tr>
<td>0.25</td>
<td>Severe motor disturbance and impairment of sensory perceptions</td>
</tr>
<tr>
<td>0.30</td>
<td>In a stupor but still conscious—no comprehension of events in the environment</td>
</tr>
<tr>
<td>0.35</td>
<td>Surgical anesthesia; lethal dose for about 1 percent of adults</td>
</tr>
<tr>
<td>0.40</td>
<td>Lethal dose for about 50 percent of adults</td>
</tr>
</tbody>
</table>

*In milligrams of alcohol per 100 milliliters of blood
I'd hate to ask Phineas a silly question, but I wonder if there really is something to mental telepathy...

Of course not!